

ABSTRACT

Renewable energy is now a topic that is being intensively discussed. One of them is solar cells, solar cells are included in the type of electricity generation that is sourced from sunlight. But in fact the use of solar cells is less desirable because the results are less than optimal. Therefore, in this thesis a solar cell is designed to be able to move in the direction of sunlight so that the results obtained are more optimal.

This final project focuses on designing a PID controller that is used to regulate the movement of solar cells. Light sensors are used to measure the amount of light entering a solar cell. Microcontroller is used as a tool to process the value of the measurement of the amount of light and will be processed using a PID controller. Motor drivers are used as a tool to adjust the direction and speed of DC motors that have been connected to solar cells.

From the tests that have been done, the output of solar cells using a PID controller as a position control can produce 20.8% more power than the solar cell output that is static (by ignoring the energy requirements of DC motors).

Keywords: *Control system, solar cells, PID controller*